ANESTHESIA SUPPLEMENT—FOLLOWING PAGE 16.

SUBSCRIPTION, ONE DOLLAR PER YEAR FOREIGN, SIX SHILLINGS

AMERICAN JOURNAL OF SURGERY

A Magazine of Practical Surgery in all its branches

WALTER M. BRICKNER, M.D. Editor-in-Chief
JAMES P. WARBASSE, M.D. Special Editor
JOS. MacDONALD, Jr., M.D. Managing Editor

PUBLISHED MONTHLY BY SURGERY PUBLISHING CO., 92 WILLIAM STREET, NEW YORK, U. S. A.
J. MacDonald, Jr., M.D., President.

Entered at New York as second-class matter.
Copyright, 1917, by Surg. Pub. Co.

VOL. XXXI. JANUARY, 1917. No. 1.

CONTENTS

ORIGINAL ARTICLES.

A Contribution to the Study of the Relation of Erosions of the Cervix to Malignant Growths of the Uterus. M. Benmosche, Detroit, Mich. 1

Histology—The Genesis of Carcinomata—Precancerous Stage — Similarity Between the Cervix and Mammary Gland—The Recognition of Early Symptoms of Malignancy —Report of a Case.

Six Months of War Surgery in a Base Hospital in Germany. Hermann Fischer, New York City. 4

A Description of the Hospital and Its Departments — Wounds Encountered—Gunshot Wounds of the Skull with Injury to the Brain—Report of Cases—Osteo-plastic Operations of the Skull — Wounds of the Neck, Chest, Abdomen and Pelvis—Bladder Injuries—Treatment—Injuries to the Nerves.

Some Surgical Considerations Concerning the Operation for Goiter. H. B. Epstein, Newark, N. J.. 11

The Important Questions Involved—Is Operation Always Indicated?—The Severity of the Subjective Symptoms—Points to be Considered in the Operation.

EDITORIALS.

First Aid to the Injured. 12

George Ben Johnston, M.D., LL.D., F.A.C.S. 12

Fracture of the Neck of the Femur in Old People. 13

Forthcoming Issues of the Journal 14

SURGICAL SUGGESTIONS ...14

BOOK REVIEWS.

Diagnosis and Treatment of Surgical Diseases of the Spinal Cord and its Membranes—Elsberg. 14

Geriatrics.—Nascher. The Treatment of Diabetes Mellitus.—Joslin. .. 15

PROGRESS IN SURGERY.

A RÉSUMÉ OF RECENT LITERATURE.

Perineal Anesthesia in Labor. Ectopia Testis. Ovaritis. The Leucocytis in Pregnancy. 15

Bastedo Sign in Chronic Appendicitis. Non-Tuberculous Renal Infections. Papilloma of the Bladder. Wounds of the Thoracic Duct. Laryngeal Tuberculosis. Felons. Massive Hemorrhages of the Stomach. .. 16

ANESTHESIA SUPPLEMENT following page. 16

For more than half a century, and in millions of cases SQUIBB'S Ether has been used by surgeons for the safety and comfort of their patients. SQUIBB'S Ether is, and always has been, made only in the Squibb Laboratories by the Squibb process, worked exclusively by us.

E. R. SQUIBB & SONS

A notable germicide, disinfectant, deodorant, lubricant and cleanser

GERMICIDAL SOAP

(P. D. & CO.)

Combines the powerful antiseptic mercuric iodide with a soap made from pure vegetable oils.

IN surgery this soap is an admirable general disinfectant. It can be used to prepare antiseptic solutions without measuring, weighing or waste.

A favorite form with many physicians.

In obstetrics and gynecology it is a valuable antiseptic, deodorant and lubricant for the examining finger or instrument.

In office practice it is useful as a disinfectant for the hands after examinations. It is efficacious in the treatment of parasitic diseases.

Germicidal Soap, P. D. & Co., is serviceable in cleansing minor wounds; as a deodorant in cases of hyperidrosis with offensive odor; for cleansing the scalp and checking dandruff.

It may be used as a shaving soap by patients having sycosis, and in the treatment of pustular acne and furuncles it may be applied freely to prevent a spread of the infection.

Vaginal douches prepared from it are less irritating than those containing mercuric chloride, less toxic, and more detergent.

Germicidal Soap, P. D. & Co., does not attack nickeled or steel instruments. It does not coagulate albumin.

Germicidal Soap, 2% (contains 2% of mercuric iodide): large cakes, one in a box.
Germicidal Soap, Mild, 1%: large cakes, one in a box; small cakes, five in a box.
(For other forms see our catalogue.)

Home Offices and Laboratories,
Detroit, Michigan.

Parke, Davis & Co.

FIFTY YEARS OF PHARMACEUTICAL PROGRESS.

Please mention the American Journal of Surgery when writing advertisers.

AMERICAN
JOURNAL OF SURGERY

VOL. XXXI. JANUARY, 1917. No. 1.

A CONTRIBUTION TO THE STUDY OF THE RELATION OF EROSIONS OF THE CERVIX TO MALIGNANT GROWTHS OF THE UTERUS.*

M. BENMOSCHE, M.D.,
DETROIT, MICHIGAN.

When approaching any matter of a more or less complex nature, we should first reduce it to its lowest common denominator, and then by very careful mathematical precision, so enumerate our clarified facts as to give us a result wherein the truth of the thing becomes self-evident. I purpose treating my subject in accordance with this principle, and do not think I can do better than by starting out with a brief description of the histology of the cervix.

A consideration of the cervix histologically simply comprises a review of the differences that distinguish it from the main body of the uterus, and these differences are found in the inner and outer coats, the middle coat being the muscular portion and practically identical with that of the rest of the organ. The inner or mucous coat of the cervix instead of being smooth like that of the fundus is thrown into folds. The glands of the fundus are single tubes and lined by low columnar ciliated epithelium of a not particularly active character, while those of the cervix are branched tubes, the epithelium, ciliated but much taller columnar and decidedly active in character. So active are these glands that they very often become distended with secretion when their outlet for any reason becomes occluded. These distended glands can sometimes be felt and seen. They have received the name of Nabothian follicles. In a normal virgin cervix the ciliated columnar epithelium extend almost down to the external os, where they more or less abruptly merge into the stratified squamous epithelium of the vagina; but the cervix that has once been lacerated by labor or otherwise, has the vaginal epithelium sometimes extending as high up as two-thirds the length of its canal, depending, of course, upon the extent of the laceration. This brings us to the consideration of lacerations.

I believe it is as common for the gynecologist or obstetrician to find a lacerated cervix as it is for the dentist to detect a decayed tooth. The majority of these lacerations, however, readily heal. The raw surfaces become covered with the actively proliferating vaginal epithelium with comparative rapidity. It is those extensive lacerations that suffer an inflammatory interference so that their normal healing course is disturbed that give rise to pathological conditions demanding attention.

It being my object to make this paper as brief and as concise as possible, I shall have to pass over the various pathological stages which occur in inflammation of the cervix. It is, however, opportune for me to interpose my theory as to the genesis of carcinomata in general

So far as epithelial new growths are concerned, there is one outstanding fact which experience, in spite of assertions to the contrary, has proved beyond controversy, and that is, that all carcinomas, whether of the squamous or the columnar cell type, have as a starting point some irritating influences. These may be traumata, toxins of certain microbes, or various chemical, electrical, thermal or mechanical agencies. These agencies are all producing the identical effects, in a lesser degree, of *x*-rays or Radium.

What applies to the atom of inorganic substances applies with more force still to the atom of organic substances. All living matter, all protoplasm, vibrates according to a certain rate of movement which is peculiarly its own. The agglomerations of corpuscles which form the atoms of an epithelial cell vibrate within their own sphere at a given rate, and that rate of vibration—the velocity of corpuscular movement within its atomic walls—determines the nature, the attributes, the potentialities of growth, of decadence of that particular cell. Each corpuscular unit vibrates in unison with its companions; the process is a rhythmic one, and the more perfect the vibration the more even is the growth and development of that particular unit, and the more specialized is that unit. This is the one really essential, universal property of matter, whether living or non-living. Beauty of form—perfection—is found only in harmony, and protoplasmic life is no exception to the rule. Thus, as stated by Williams, "growth is due to the tendency of like units to

* Read before the Maimonides Medical Society.

unite, and of unlike units to separate," or as Spencer has it, "growth is an integration with the organisms of such environing materials as are of like nature with it." Or to put it in electric parlance, corpuscular units vibrate in unison only with units which are animated with the same rate of vibration. But let us by some means or other alter the rate of vibration of that unit, let us say, introduce an element of radio-activity—which we have seen produces a peculiar instability of corpuscular motion—then the nature of that unit alters. Where harmony—perfect rotation existed, chaos reigns. If the unit be a highly specialized epithelial cell, it may become suddenly animated with remarkable activity of a disordered nature; it may wax strong and multiply exceedingly; it may proliferate at an abnormal rate leading to the production of excrescences, papillomas, warts, or it may die, killed at the outset by the force of the stimulus, it may change its very nature in a remarkable and fundamental manner. Under the influence of radio-active changes, we see its fine protoplasmic granules revert, by a curious retrogressive movement, to its coarse granules of its primordial prototype, the ameba—the protozoa—and it then acquires the activities, the energies, the disordered proliferative tendencies which so markedly characterize new growths of pre-natal origin. In another word, the "uni-cellular cancri" has been born and the parasitic stage attained.

The age incidence is of material importance in cancer genesis. Probably there are obscure forces which govern metabolic changes, and sexual affinities are strong enough in young subjects to counteract the influence of stimulation, so that radio-activity will merely produce proliferation without fundamentally altering the nature of the cell itself.

When a group of epithelial units are nearing senescence, when having attained the highest degree of specialization possible, they have almost completed their life cycle, long continued stimulation of an irritative kind must mean either somatic death to cell life or change of nature. Such a cell is, indeed, incapable of maintaining its integrity and to successfully combat the depressing influences which surround it. The forces which have governed its full development are near well expended, and it has attained that period of instability which always precedes degenerative changes. Now what are those changes? On what lines should we expect them to take place? They can be only on those of the universal law of evolution, i. e., a return to the primitive type of cell from which the epithelial unit of the high class mammalian has evolved. "That primitive protoplasmic unit" Sir Henry Butlin calls the "uni-cellular cancri," and would like us to believe that it is an independent organism, born de novo and alike to the protozoa. It is possible, but if so, the cancer cell is not a new organism—a new creation of animal being. Its whole life history points it out to be a higher epithelial cell which has degenerated and reverted to its ancestral prototype—the uni-cellular protozoa. If not so, why should cells found in cutaneous cancers retain so many of the biological characteristics of the parent tissue, or those of the stomach and intestines reproduce the cylindrical epithelium of their glandular structures?

With that reversion to the parental type it acquires anew all the qualities as well as defects of that uni-cellular organism. The qualities are, intense activity, rapid proliferation and osmosis. The defects are, disordered growth, imperfect organization, precarious existence. The stage of parasitism is complete—the parasitism of a monstrous child thriving on the life-blood of its parent. Filiation is clearly manifested by the new organism attempting in a gross and imperfect way to build tissue-like substances similar to the cells from which they originally sprang. Thus, metastases of mammary cancer are the caricature of the parental tumor growth—so are those of the liver and other organs. Morphologically, therefore, the abortive attempt on the part of the cancer cell to imitate the original tissue from which it is derived, is to us the certain proof: 1. That the cell is actually derived from previous epithelium and is not a new importation, microbic or otherwise. 2. That the protozoa-like nature of the cancer is in reality nothing but the reversion of the epithelial cell to its ancestral prototype, the ameba.

In view of this reversion I ask again, what is tumor growth? What is carcinoma? We answer, the attempt under stimulation and irritation on the part of an organic cellular unit nearing senescence to reproduce its parental prototype and begin anew its life cycle. In other words, it is the attempt of an organism which has attained majority and senescence to rejuvenate itself. Thus, what we call degenerescence is, on the contrary rejuvenescence. Thus is explained the reason why epithelial tumors arise not in youth, but in old age.

I realize that this whole argument of cancer genesis is based on the hypothetical notion of the electronic nature of matter. But notions which are tentative to-day may be to-morrow sober, scientific facts. Indeed, some of them are already so. The veil which still covers the mystery of matter is rapidly lifting. Radio-activity, the transmutation of the elements, are the portals which will give us ere long a glimpse into the vast stores of intra-ele-

mental and intra-atomic energy—nay, may even explain the "Riddle of the Universe."

It is necessary now to lay some stress on the following facts:

1. The glands of the cervix possess marked functional activity.

2. The cervix is even under normal conditions peculiarly subject to injuries and irritations of one form or another, and is therefore—

3. the most common seat for inflammation and its attendant pathological changes in child-bearing women.

I should now like to direct attention to the similarity existing between the cervix and the mammary gland, in view of the preceding facts. In the mammary gland we have also the marked functional activity. The mammary gland is also subject to the various forms of injuries and irritations, and in the same way do we have the different degrees of inflammation with its varied sequelae. Acute and chronic mastitis are fairly common occurrences in child-bearing women.

We have come to understand by a more or less slow process of enlightenment, that carcinomatous conditions are very frequently evolved from pre-existing inflammatory states. This statement may sound very commonplace, but I shall make no apology for it, but rather wish I could encroach on your time by heaping illustration upon illustration, observation upon observation, in order to emphasize this point. It is a strange truth, that, though we may be cognizant of a fact, it by no means follows that we fully, or at all realize it.

Present day pathologists have coined the term "pre-cancerous stage," which can be defined as that chronic inflammatory condition which precedes the onset of malignancy. To substantiate this observation I could quote such authorities as Victor Bonney, Waldeyer, Ribbert, Borrman and a score of other distinguished observers, but I do not consider it necessary, as I believe every practitioner has been able to observe this fact in his own clinical experience. I shall omit the vast amount of data which we possess, as regards the intricate cellular pathology concerned in this pre-cancerous stage.

We shall not go back to the cervix. A great many practitioners unfortunately fail to distinguish between simple erosion and an ulceration. I believe it was Emmett who said that no ulceration of the cervix should be looked upon as benign. This also is a simple truth, but it is a truth that must be realized and remembered. I have seen a number of practitioners call a cauliflower growth of the cervix a benign erosion.

In connection with the similarity existing between the cervix and mammary gland previously noted, there is another fact that recent studies in pathology have brought into view. We have found that the organs of the greatest functional activity are those most frequently affected by malignant changes as well as by inflammatory disturbances, in fact, the greater the functional activity the greater is the tendency to these changes. From our histology we know that the cervix is functionally more active than the fundus of the uterus. Now note what the eminent committee appointed by the American Medical Association to investigate cancer of the uterus reported at Boston in 1906: "Cancer of the uterine cervix is much more frequent than of the body of the uterus, and is much more malignant." I think we shall cover the whole ground pretty well if we particularly bear in mind the general principle that chronic inflammatory conditions tend to give rise to malignant changes in direct proportion to the duration of the inflammation and the protoplasmic activity of the part affected.

The following is culled from the committee report above mentioned: "It is evident that all women suffering from uterine bleeding or other symptoms referable to the uterus should be examined as soon as possible, and if the diagnosis is not clear the uterus should be curetted or a small piece of cervix excised and not thrown away, but preserved in 10% formalin or ordinary alcohol and sent to a competent pathologist. All symptomatic aberrations referable to the generative organs of women about the menopause should be looked on as a possible beginning of malignant disease, and immediate examination should be urged.

"If a suspicious area is found, prompt measures for its certain diagnosis by the microscope may be instituted. Authentic cases of complete eradication of undoubted cancer of the cervix are so numerous as to leave no doubt that, if the diseased tissues are completely excised and if implantation at the time of the operation is avoided, a permanent cure is not only possible but also probable."

Diagnose your lacerations and erosions early and look after them. Neglect in these cases is the cause of all the mischief, particularly in women of the carcinomatous age. A great deal is being done to educate women by popular instruction how to recognize the early symptoms of malignant changes of the uterus. This sort of campaigning has brought about wonderful results in some parts of the world, which is significant in itself. And I firmly believe that if the physician would look after every lacerated or eroded cervix that he encountered and render prompt and radical treatment in every case, the number of carcinomas of the cervix

and uterus would be greatly diminished, and I am convinced that an inoperable case of uterine carcinoma would become a rarity.

I shall report one case, typical of a series that have occurred in my private practice during the last ten years:

Mrs. K. Age 29. Married 5 years. Two children, youngest 19 months. Family history negative. Complains of general weakness, and an offensive leucorrheal discharge. Menstruates every 21 days. Examination showed a bilateral laceration of the cervix, markedly eroded. The patient submitted to operation March 6, 1916. The cervix being rather elongated, I decided it was preferable to amputate than to repair. Microscopic examination showed proliferative changes in the glandular structures. The glands were increased in number, enlarged and showed a tendency to coalesce. Diagnosis, early malignancy. Condition, September, 1916, seven months following the operation, negative. The clinical and the microscopical pictures in this case were totally different!

310 FINE ARTS BLDG.

SIX MONTHS OF WAR SURGERY IN A BASE HOSPITAL IN GERMANY.

HERMANN FISCHER, M.D.,
Adjunct Surgeon, German Hospital,
NEW YORK CITY.

The following is a brief account of the relief work done by the first physicians' expedition sent to Germany under the auspices of the American Physicians Expedition Committee.

The expedition consisted of four surgeons—Dr. King, Dr. I. Brooks, Dr. L. Mathesheimer and the author as chief surgeon—and four nurses.

We sailed on September 9, 1915, and arrived safely in Germany on the 27th of September. After communicating with the Ministry of War in Berlin we were assigned for duty to the Reserve Lazarett, Oppeln in Lower Silisia. Oppeln is a town of 30,000 inhabitants and an important railroad center, railroad lines radiating from here to the north, the south, the east and the west. The town is situated only an hour's auto ride from Czenstochowo, the first important Russian town across the border. It is the seat of the county official (Regierungs-Praesident) and boasts of three hospitals in times of peace. A lying-in hospital and two smaller hospitals run by Catholic sisters.

In the beginning of the war the town was very near the fighting zone. Its importance as a hospital center was therefore apparent. Two of the four schools and some other public buildings had been turned into hospitals so that 1,700 beds were available.

We arrived at Oppeln on the 16th of October, and the following day our unit was assigned to Public School 3/5, a new large three-story building containing 300 beds and destined to receive only severely wounded. It constituted the surgical division of the Reserve Lazarett Oppeln. Besides our surgical hospital the following departments had been created: (1) Department for internal diseases. (2) Department for skin and venereal diseases. (3) Department for tuberculosis of the lung. (4) Department for convalescents. (5) Orthopedic department. The rooms in our hospital were large and well ventilated, each containing fifteen to twenty beds, according to its size. In the basement, the kitchen and a bathroom with tubs and hot and cold water douches had been established. A large room with plenty of light was used as bandaging room. The corresponding room on the second floor was turned into an operating room. In the hall on the second floor a large space had been divided off and turned into the *x*-ray room and the developing room. Another large room on the same floor was used as a mechano-therapeutic department, with the necessary pendulum apparatuses, hot-air and electro-therapeutic machines. A modern *x*-ray apparatus and the machines for the mechano-therapeutic department were installed by the expedition.

On October the 18th, the second day after our arrival in Oppeln, our first wounded arrived from Bijela, near Brest-Litowsk in Russia. The men were transported in a hospital train carrying 300 wounded, of which 200 were destined for our hospital. From October 18th to March 31st there were treated by our expedition 727 wounded. Of these were 493 injuries by shot and shell. The rest were simple fractures, hernias, appendicitis cases and minor surgical ailments, sent into the hospital from the barracks at Oppeln. Strange to say we had no soldiers wounded by bayonets or other cutting weapons. Among these 493 wounded soldiers ten had bullet wounds of the head with injury of the brain, four were shot through the spine with more or less wounding of the spinal cord. Twenty-two had received wounds of the head, face and neck without injury to the central nervous system. Seventy-four were shot through the chest, abdomen and pelvis. One hundred and one were wounded about the upper extremity, 264 about the lower extremity. Fourteen wounded suf-

fered from a paralysis of peripheral nerves of the upper and lower extremities in consequence of wounds of the median, the ulnar, the radial, the sciatic and the peroneal nerves. Only three gun-shot wounds of the large vessels were observed resulting in aneurism of the femoral artery, of the subclavian artery and of the innominate artery, the last being an arterio-venous aneurism. Of these only the femoral aneurism was operated upon. In the other two the symptoms were so slight that it was deemed best to let well enough alone.

1. *Gun-shot wounds of the skull with injury of the brain.*—As the number of wounds of the head by gun fire and artillery fire has been very great, certain principles, won by experience, have been laid down in course of time in the treatment of these wounds. The severity of a gun-shot wound of the skull depends very much upon the distance from which the shot is fired and upon the angle of impact of the bullet and whether the bullet penetrates the brain or not. We distinguish the following types:

(1) Tangential shots. (Fig. a.)
(2) Segmental shots. (Fig. b.)
(3) Diametral shots. (Fig. c.)

In the first two types the bullet passes in and out; in the last type it may pass straight through the skull, or it may become arrested and inbedded into the brain.

The immediate mortality of the skull wound is high, but a good many of these cases are not immediately fatal and reach the field hospitals quickly, usually one or two hours after the wounding. The highest mortality show the diametral shots on account of the great destruction of brain substance and the considerable hemorrhage. Exceptions, however, occur; I can mention two that recovered.

Skull injuries are all operated upon immediately in the field hospitals. In the light cases, in which the skull wound and the defect in the dura is small, the edges of the wound are excised, splinters of bone and other foreign material are removed, and a tampon is lightly inserted, covering the dura defect. This treatment has been advocated by Tillman and is in the majority of cases successful. The danger of infection of subdural and arachnoidal space is not great, as the brain will always prolapse somewhat through the dural rent and thereby close off the subdural space.

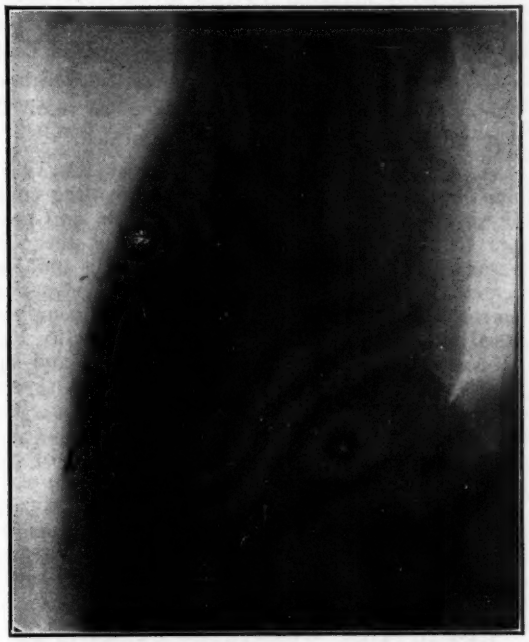

Fig. 1. Shattering of bone by Russian "explosive" bullet.

Fig. 2. Gun-shot fracture of tibia and fibula, healed.

Entirely different is the situation in those cases of tangential and segmental shots in which the destruction of bone and of brain substance is considerable. In these cases the flow of cerebro-spinal fluid and the loss of brain substance demand a different course. Here the subdural and arachnoidal spaces are wide open; the brain will not protrude on account of loss of substance, and all doors are

wide open to invite meningeal infection if the dural defect is not closed.

The method of procedure therefore is as follows: Local anesthesia with ½%-1% novocain, with addition of 20 drops of adrenalin solution, 1 : 1000. If this solution is injected into the scalp a preliminary hemostatic Haidenhain suture is not necessary. It also controls the often severe bleeding from the brain. The ragged and contused edges of the scalp are excised, all the splinters of bone, destroyed brain and foreign substance are carefully removed. If the bullet is lodged in the brain the canal is explored and the bullet, if easily found, removed. The loss of brain substance is often considerable, and it is necessary to fill out the defect with some other tissue. This is done by free transplantation of fat, usually subcutaneous fat of the thigh. The defect of the dura is closed by free transplantation of fascia, the smooth glistening surface, normally in contact with the muscle, turned towards the dura. The fascia transplant has to overlap the dural edges by at least ½-1 cm. and is fastened to the dura by fine sutures. The wound of the scalp is closed. To avoid a possible hematoma a small rubber-tissue drain is inserted between the sutures at the angle of the wound.

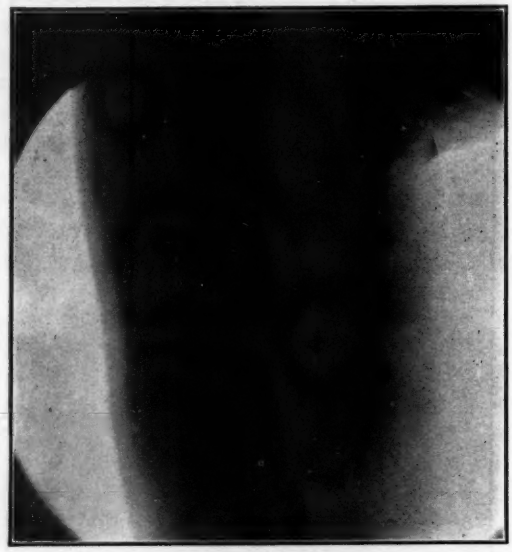

Fig. 3. Fracture of femur; rifle bullet.

In the beginning of the war most of the skull wounds had been treated openly with the dire result of almost sure infection in most of the cases. Although the opinion of some surgeons still differ as to the advisability of primary suture of such injuries, many surgeons have had most gratifying results with it. Kaeger reports 14 cases which all healed by primary union; Holtz, Barany, Jeger, Stich and Schneider also report good results. It is self-understood that only fresh cases, and only such in which the wound is relatively little soiled, offer favorable results. Cases which reach the surgeon on the second day or later should be treated by the open method.

It lies in the nature of these injuries that such cases reach the base hospital after they are practically healed. We had, however, to deal with the late manifestations of these brain injuries after the patient had recuperated from the primary operation.

Among the ten cases of gun-shot wounds of the skull, which had been operated upon in the field hospital, there were three cases which showed late symptoms calling for relief. All three had received tangential shots. The wounds were healed.

CASE I. H. S. Wounded August 22, 1915. Gun-shot wound of skull. Operated upon the same day in the field hospital. Sent to Oppeln on October 10, 1915. There is a wound over the left parietal bone, corresponding to the arm and leg center. It is 6 cm. long and 2 to 2½ cm. wide. The scar is firm and pulsating. He had had a complete paralysis of the right arm and leg. Mobility has returned, but a severe spasm of right arm and leg has developed. All reflexes are exaggerated, severe ankle-clonus and jerky spastic gait are present. He suffers from headache and dizziness.

Operation, December 29, 1915. Excision of old scar and closure of defect in skull by skin-periosteum-bone flap after Mueller-Koenig Primary union. February 2, 1916. General condition of patient much improved. Headache and dizziness have disappeared. Spastic gait so much improved that he could walk with support of a cane.

CASE II. T. S. Wounded near Duenaburg October 30, 1915. Gun-shot wound of right parietal bone. Operation on November 22, 1915. Admitted to Reserve Hospital, Oppeln, December 12, 1915. There is a defect in the right parietal bone over arm and leg center 5 cm. long and 2 to 2½ cm. wide, the wound is still granulating. There is still some loss of power in the left arm and a spastic condition in the left leg. Complains of headache and dizziness. January 1, 1916, suddenly seized by a short but distinct attack of cortical epilepsy which started in the muscles of the left thumb. January 28, 1916, two more attacks. Roentgenogram shows single spicule of bone projecting into brain. January 31, 1916, operation. Excision of old scar. There is a prolapse of the brain the size of a walnut. The brain substance is tightly adherent to the dural scar. After mobilizing the dura and inspecting the cortex a splinter of bone, 3 : 4 mm., is found imbedded in the brain. It is carefully removed with forceps and the finger. Brain pulsates normally. Edges of dura can easily be brought together by suture. Closure of bony defect by osteoplastic flap after Mueller-Koenig

Primary union. After the operation the patient had spastic cramps in arm and left leg, but no disturbance of consciousness. On the seventh day after getting out of bed he had another regular attack of cortical epilepsy which was light and lasted about 5 minutes. February 23, 1915, attacks have not repeated themselves. Patient is up and about, but still complains of feebleness in arm and occasional headaches. The osteo-plastic flap has healed in firmly. March 3rd, had another attack lasting 5 minutes. He is still in the hospital.

CASE III. F. M. Wounded on January 1, 1915, by gun-shot fire. Operated upon in a field hospital. After being wounded he was unconscious for two weeks. Right after injury he developed attacks of cortical epilepsy. He has a distinct aura, becomes dizzy and immediately afterwards, fingers of right hand commence to twitch and his right arm is thrown into a flexor-spasm, whereupon he becomes unconscious. These attacks have continued for two weeks after the operation and abated somewhat, but subsequently his condition became worse again, and he was therefore admitted to the hospital on January 25, 1916. Status. Over the left parietal bone there is a somewhat retracted scar 7 cm. long and of bluish color. Patient complains of severe dizziness and constant headache. Examination of eyes reveals nothing abnormal. There is no paralysis of any of the extremities. Two *x*-ray pictures show no bone splinters or other foreign bodies. February 4, 1916, operation. Excision of scar. On exposing the dura no pulsation of the brain is noticed. On careful palpation there is, however, a faint pulsation to be felt. On incising the dura a cyst the size of a large hazelnut is found. After opening it a few cc. of amber-colored fluid escape, whereupon the brain instantly resumes its normal pulsation. The thin walls of the cyst are carefully removed, the dura is partially closed and two silkwormgut-threads are inserted for drainage on account of some oozing. The scalp is closed over the defect and the silkwormgut-threads let out between sutures. February 7, 1916, wound is dry; no discharge of cerebro-spinal fluid. March 3, 1916, there is a small granulating wound with a small fistulous opening leading below the scalp. General condition is satisfactory; has had no attacks up to date, but still is a little dizzy. His headache has markedly improved. He is still in the hospital.

Indication for osteo-plastic operations of the skull.—No case should be operated upon before the wound is completely healed. Indication for the plastic operation is the defect of the bone and the presence of the scar, which are the causes of cortical irritation and psychical derangements. Autoplasty is the procedure of choice. Heteroplasty has been almost discarded, at least in Germany. Cortical scars and areas of circumscribed edema in the pial or arachnoidal membranes have to be excised. The ensuing loss of substance must be replaced by a corresponding piece of subcutaneous fat, which is laid into the defect.

Injuries of the inferior maxilla.—The mortality of injuries of this kind has been as high as 50 per cent. in former wars. The number of gun-shot wounds both of the superior and the inferior maxillary bone has been considerable and from the very beginning of the war, the importance of co-operation between the surgeon and dentist had become clear and imperative. Gun-shot and shell wounds of the superior maxillary bone do not present themselves for treatment in such numbers as the bullet injuries of the superior maxilla have a much higher immediate mortality on account of concomitant injury to the base of the brain.

Due to the establishment and organization of a great number of special hospitals throughout Germany, excellent and, in some cases, remarkable results are achieved by the cooperation of surgeon and dentist in these cases. The destruction of tissue is sometimes very considerable and the danger of infection from the buccal cavity very great. Therefore an active surgical therapy is necessary. All loose bone fragments must be removed, but each piece of bone that is still in connection with the periosteum is carefully saved, as it may heal in, even if suppuration is present. The fragments are held together by interdental splints of various shapes and kinds. If there is loss of substance, bone plastic operations and soft part plastics are performed after the wounds are clean.

I personally have seen among my own material only three cases. These were practically healed and needed only the removal of small sequestra.

Wounds of the neck, chest, abdomen and pelvis.—Of these injuries seventy-four cases were treated.

Among the gun-shot wounds of the neck one was an injury of the larynx. The bullet had been fired from the flank and had torn away the anterior wall of the thyroid, leaving a big gaping wound. The soldier was admitted carrying a tracheal tube which was inserted through the wound. His condition was pretty fair, so that no active interference was indicated. As he had worn the tube for almost four weeks, it was removed. On closure of the wound with the finger it was noticed that there was no impairment of breathing and that he was able to speak with a whispering voice. After two weeks the wound was clean and had contracted somewhat, so that I was able to close the defect in the cartilage by a plastic operation. This was done under local anesthesia in the following fashion: The borders of the defect were freshened and a U-shaped flap of cartilage, 1 cm. x 1½ cm. in size, with the perichondrium attached, was turned downward over

the defect and the edges of the perichondrium stitched to the perichondrium, close to the defect. The skin wound was closed. A few strands of silkwormgut were inserted between the sutures for drainage. A few days later, one of the sutures had to be removed on account of a slight skin infection. The flap healed in, however, and the wound closed. Laryngological examination three weeks after operation showed a diffuse reddening of the vocal cords. Both vocal cords moved normally. His voice had improved considerably, although he still spoke in a whisper.

Among the bullet wounds of the chest only two cases needed surgical interference. The great majority of them had healed without any inflammatory reaction by rest in bed under morphin treatment and the application of an ice-bag.

The first of the two cases came in with a large hemothorax, a good deal of dyspnea and some fever. The hemothorax was aspirated and bloody fluid withdrawn with the result that the patient made a good recovery and could be dismissed after about five weeks. The second case was a shell wound of the back with complicated fractures of the sixth to ninth ribs and an injury to the lower lobe of the lung. He had been operated upon in a field hospital, and was admitted to our hospital with a large old empyema cavity. Here a thoracoplastic was done with a good result.

Among these chest wounds were found two cases of traumatic aneurism. One of the wounded had a spurious aneurism of the second portion of the subclavian. The aneurism was small and was found only after careful examination, as the patient complained of no symptoms. The second case had been shot through the chest near the jugulur. A loud bruit could be heard over the whole chest. There was quite a distinct pulsation above the jugulur and just above the sterno-clavicular joint. The sound was conducted into the axillary artery and the carotid on the right side. We probably had to deal with an arterio-venous aneurism of the innominate artery and vein.

Both cases had no subjective symptoms, and their general condition was excellent. There was no indication for surgical interference at the time. Bullet wounds of the chest have a fairly good prognosis, if no large vessels are injured and no infection is carried into the pleura or lung. They heal quickly under rest, morphin and the application of an ice-bag. Most of the chest injuries are followed by a bloody exudate in the pleural cavity. In a fair proportion of these cases the blood will be absorbed within the first two weeks. In the lung there are found in cases that came to autopsy slight areas of necrosis with only slight signs of inflammatory reaction in the lung tissue itself. Bloody expectoration is always present, and in the majority of the cases it stops after three or four days. The treatment is therefore conservative, with the exception of the injuries by shell-fire. These, however, are to a large extent quickly fatal and only a comparatively small number of them will reach the surgeon.

Combined injuries of the thorax and abdomen are comparatively frequent. Their mortality is of course much higher. I cite the following case because of its unusual and interesting features.

K. was struck by rifle bullet while lying down. The bullet entered the left supraclavicular groove,

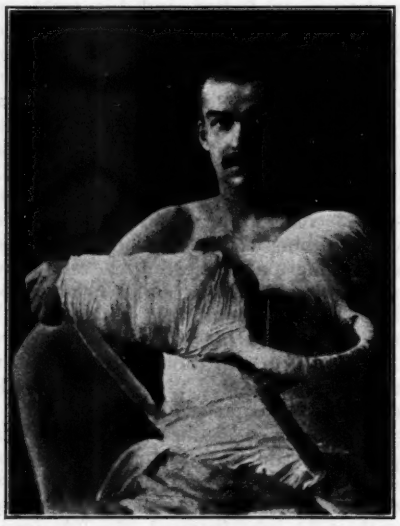

Fig. 4. Dressing for extensive injury of elbow.

traversed his chest and passed out in the right flank two fingers' breadths below the border of the ribs in the posterior axillary line. He had been treated for some time in a field hospital and was then admitted to our hospital. His general condition was good. Both wounds had healed. No abnormal signs of lung or heart. He complained of pain in his abdomen, aggravated by the ingestion of food. Abdominal examination revealed a large cystic tumor that occupied the whole abdomen from a hand's breadth above the umbilicus downward. It was cystic and gave the impression of a large hydro- or pyonephrotic sac. Urine showed no abnormalities. Catheterization of both ureters showed a normal flow from both kidneys. The color of the left, however, was very much lighter, almost like water. Operation revealed a big cyst that was adherent to the lower surface of the right lobe of the liver, to the omentum and to the parietal abdominal walls in both flanks. It dipped down into the pelvis. Aspiration showed bile-stained fluid. After emptying about five liters of brown chocolate-colored fluid the cyst wall was easily removed by blunt dissection. A few large vessels coming from

the omentum had to be tied. The shelling out of the sac was a little more difficult in the region of the kidneys. Finally, it became clear that the cyst wall was attached to the lower surface of the right lobe of the liver by a pedicle the size of a thumb. At the point of insertion of this pedicle was a scar in the liver tissue. We had, therefore, to deal with a biliary pseudo-cyst caused by a bullet wound of the liver. A small tampon was laid against the liver scar and a rubber drain inserted into the pelvis. He had no reaction after the operation and made an uneventful recovery.

The mortality of the abdominal wounds has been high and the prognosis especially bad if conservative treatment was instituted. The experiences in this war, at least on the German side, have shown that immediate laparotomy gives the best results, provided this is possible. This of course depends a good deal on external conditions, whether a troop is constantly moving or whether trench fighting is going on. Sauerbruch reports 40%; Laewen, who was enabled to operate at an average of 5½ hours after wounding, 48%, and Kraske, 51%, of cures in injuries of the stomach and intestines. In these cases the best organized army medical corps will have the best results.

Bladder injuries.—Among our cases were five gun-shot wounds of the bladder. They had been operated upon in a field hospital by suprapubic cystotomy or came to us with a permanent catheter. Two of the wounded had a perivesicular abscess communicating with the bladder, which, however, healed by bladder irrigations, and one had a recto-vesical fistula. An attempt to close it by a simple operation failed.

Bullet and shell wounds of the upper and lower extremities.—There were treated 101 injuries of the arms and shoulder, and 264 of the thigh and leg; *i. e.*, two and one-half times as many injuries of the lower extremities as of the upper extremities. Wounds by rifle bullets and shells present with a few exceptions one common feature—infection. I could observe only a few rifle and shrapnel bullet wounds which had healed without infection, among them a shrapnel injury of the knee joint, with a comminuted fracture of the patella, and an oblique fracture of the epiphysis of the femur. There existed a bony ankylosis of the knee, which was subsequently operated upon. The patient had normal motion after three months. The extent of the injury of the bone and the soft parts vary greatly. The destruction of bone depends upon the distance from which the shot is fired and the manner in which the bullet strikes the object. The wound of entrance is usually small whereas the wound of exit presents a large gaping opening with laceration. This is especially marked in bones that are situated immediately below the skin, as the tibia and the radius or ulna. In the injuries of the thigh the wound of exit is often not much larger than the wound of entrance, but near the bone the soft parts are frequently lacerated to such an extent that big cavities are formed in which a number of fragments of bone lie, which were carried into the soft parts by the impact of the bullet. In these instances large hematomata may be formed. Roughly speaking, we can distinguish three types: (1) The bullet has grazed or penetrated the bone without disturbing its continuity. (2) The impact of the bullet has caused a fracture of the bone without comminution. (3) The bullet has caused widespread shattering and splintering of the bone with innumerable fragments and considerable laceration of the soft parts.

Fig. 5. Dressing for extensive bullet wound of knee.

The wounds made by shell-fire were distinguished by the severity of the comminution and laceration and were so various in character from each other that it was not possible to arrange them into types.

As stated before, our cases were mostly infected, and men had been wounded one week to four weeks before they came into our hospital. There was in the hospital a number of cases of chronic osteomyelitis from wounds received several months before.

Treatment.—The severe infection always necessitates a rather active therapy. All abscesses and pockets have to be carefully located and must be laid open widely. Bone fragments that seem to be impaired in their nutrition must be removed. This, however, must be done with circumspection, as a good many of the fragments will heal in in spite of the infection. I have seen fractures consolidate where the bony destruction was so great that the hope of restitution seemed to be a forlorn one. The wounds are drained with rubber tubing and loose gauze dressings are applied. Over the gauze are

****

laid several layers of "Zellstoff" to take up the usually abundant secretion. Of great importance is proper fixation. The ideal means for this purpose is the plaster dressing. The wound area is left free and the gap bridged over by iron bands (Fig. 5). In this fashion the patient can easily be dressed without pain. Moreover, fixation is the sovereign means to combat fever. Time and again I have seen the patient's temperature come down to normal two or three days after the plaster cast had been put on.

In injuries of the shoulder and elbow joints the arm should be put up at right angles to the thorax and the plaster dressing should take in the chest, the arm being supported by iron girders (Fig. 4). This is the best way of combating atrophy of the shoulder muscles. In severe infections extension should be used with care. Forcible reduction of fragments should never be attempted. It is better to wait until the wounds are healed and the fracture has consolidated. If the deformity and shortening are great enough to impair function, osteotomy and nail extension is the proper procedure. In fracture of the tibia and fibula, where extension was indicated, I have made use of a wire pushed through the soft parts immediately behind the Achilles tendon and resting on the oscalcis. This procedure is very simple; can be performed under local anesthesia. It gives good results.

In bullet injuries of the knee joint with severe infection and destruction of the condyles of the femur or the head of the tibia, I have opened the joint after Mayo, removed the destroyed bone and put up the knee flexed at right angles. After subsidence of the infection, and after the big wound was covered with healthy granulations, a secondary resection was done.

Where the infection of the bone had become chronic, we were guided by the rules for the treatment of chronic osteomyelitis. Although the infections were severe and the comminution of bone great, pseudarthrosis was not so frequent as one would expect under the circumstances. Unfortunately I had no chance of any osteoplastic work, as none of the wounds was far enough advanced in healing that such a procedure could be undertaken without risk.

It is only natural that in the numerous wounds of the upper and lower extremities there is found a good number of injuries to the nerves and blood vessels. Among our cases were three traumatic aneurisms, as I have stated, but only one aneurism of the femoral artery was operated upon. The general rule for operating is to wait about six to eight weeks, until one can be sure of a fairly good collateral circulation, because in the majority of cases a vascular suture or a reconstructive aneurysmorrhaphy cannot be done, because usually the whole vessel is destroyed. In our case the femoral artery was completely shot through, and the aneurismal sac was of the size of two fists. It extended from the adductor foramen upward for about 18 to 20 cm. The artery was exposed above and below the aneurismal sac, and a small rubber tube tied lightly around it to injure against hemorrhage. This act of the operation was a little difficult near the adductor foramen, as the tissues were markedly indurated by the scar. The sac was then extirpated, which was rather difficult because it extended between the muscles. There was quite some vigorous retrograde arterial spurting from the distal end of the artery, thus demonstrating with certainty a good collateral circulation. Therefore, both ends of the femoral were tied. There was a diastasis between

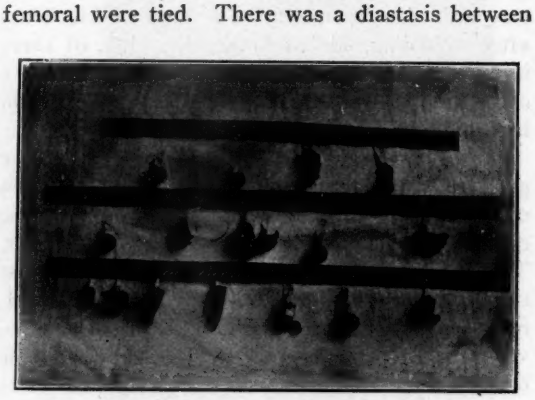

Fig. 6. Rifle bullets, shrapnel and shell fragments.

the two ends of nearly 9 cm., which precluded any attempt of suture. The wound was closed by suture and a few small rubber tissue drains inserted. Suppuration, however, occurred and a part of the wound had to be opened. It healed after four weeks.

Injuries of the nerves.—Fourteen cases of paralysis of arm and leg were observed following injuries of the median, ulnar, radial and peroneal nerves.

As my experiences with these injuries will be treated in a special communication, I shall only allude to them here. In six cases the continuity of the nerves was re-established by nerve suture. In one case a neurolysis after Stoffel and in another case a tendon transplantation were done.

I wish to thank here the members of the expedition for their faithful and untiring efforts in helping to carry our work to a successful conclusion.

SOME SURGICAL CONSIDERATIONS CONCERNING THE OPERATION FOR GOITER.

H. B. EPSTEIN, M.D.,
NEWARK, N. J.

A record of 47 goiter cases appears very small when compared with the thousands reported by our western clinics and with Kocher's statistics of 30,000 cases.

However, a review of our experiences with this limited number of patients and the lessons learned thereby, may prove stimulating and productive of some good.

The most important question which presented itself was whether all thyroid enlargements or goiters should be removed surgically. In view of the small percentage benefited by internal medication, sera, glandular therapy, electricity, *x*-rays, etc., it is my opinion that surgical intervention is the most rational procedure.

While it is true that the prolonged use of certain therapeutic measures may be followed by a reduction in the size of the goiter or even by a temporary disappearance, a recurrence, which is frequent, will greatly aggravate the previous condition and give rise to all the clinical symptoms of goiter.

When we consider that diseases of the thyroid are on the increase in this country, and the claim of authorities that there is an increase in the number of cases of thyrotoxicosis, is it not reasonable to suppose that an innocent enlargement of the thyroid may be a potential factor in the production of Graves' disease? It is also a serious question whether we can restore the vascular and endocardial or myocardial integrity, even after operation, once the damage has been done by allowing hyperthyroidism to be established.

In my series of cases I have always urged operation in benign enlargement of the thyroid and those patients who refused consent at that time subsequently presented themselves with Basedow's disease.

One patient, a female, with a simple goiter of seven years standing, rapidly developed the vascular and nervous sequences of Basedow's disease after the birth of her second child and had the gland removed seven weeks post-partum. A similar condition also occurred in a male, age 36, who, after a business embarrassment showed fulminating symptoms which increased so rapidly that three weeks from the onset, operation was performed. I recently saw a case of goiter in a youth, which developed within two weeks after a fright, upon being summoned from college by the illness of his mother, and fiding her dead on his arrival. He was 22 years of age, neurotic, but physically powerful. The course of the disease in this case ran about four weeks and ended in death without a chance for operation. There were some signs of Addison's disease present, such as bronzing and cachexia.

I feel that lesions of the thyroid should be treated by removal of the diseased structure; it is a surgical entity and merits the serious consideration of the physician just as much as any surgical lesion. I except, of course, enlargements occurring in adolescent girls who should be kept under observation.

The severity of the subjective symptoms are usually in accordance with the degree of annoyance caused by the lesion; thus the tracheal tugging may be felt as a slight sense of weight in the neck or as a constriction about the larynx. This relative degree of embarrassment is due to the amount of fibrous tissue binding the thyroid to the larynx and trachea. At times this is extreme and during the operation requires careful and prolonged dissection in order to free the gland from these structures The presence of the growth upon the contiguous structures is augmented in pregnancy, menstrual crises and the emotional incidents occurring in the life of many of the patients.

Fig. 1. After thyroidectomy, showing line of incision and cosmetic result.

Women often desire the removal of the gland for cosmetic reasons.

The operation for the relief of goiter calls for the following important considerations, the observance of which has largely contributed to the success attained in the modern operation for thyroidectomy:

First: The collar incision should be of sufficient length to permit a free dissection, the ample space

giving the surgeon better exposure and making the procedure safer.

Second: The choice of alert assistants, for rapid hemostasis is essential. This together with speed saves the patient from unnecessarily long anesthesia, too much handling and shock.

Third: After separating the fibers of the sternothyroid muscle keep close to the gland throughout the separation. If necessary, the sterno-cleido mastoid muscle may be cut across to give better exposure to the parts, the ends being sutured after the gland is removed. Care should be exercised to avoid the spinal accessory nerve.

Fourth: Careful dissection of the posterior and lateral borders in order to avoid injury to the carotid sheath or the inferior laryngeal nerves.

Fifth: Be sure to expose, freely, the upper pole of the gland so that a safe ligation may be performed with a generous pedicle. If necessary, cut the transverse layer of the deep cervical fascia. This is an important factor in reaching the superior thyroid artery and veins.

It is necessary to leave a small portion of the gland behind and also to avoid injury to the parathyroids in the dissection. The body being already over-saturated with thyroid secretion, it is advisable, in order to avoid additional strain, to handle the glands as little as possible. Vessels should not be ligated until the dissection is completed. If the temperature rises to a considerable height within twenty-four hours and the pulse is accelerated to over 120, with a suffusion of the face and eyes, I administer hypodermatically atropine sulphate, gr. 1/80, every two hours until reaction occurs.

In eight cases of thyroid poisoning, at operation, I intended to ligate the superior and inferior vessels but found that the ether anesthesia had such a pronounced tonic influence on the heart and vascular system, that thyroidectomy was done without the ligation.

I use Porter's boiling water injections, combined with rest and a bland diet, in extreme cases of Basedow's disease, before doing a thyroidectomy.

465 HIGH STREET.

GEORGE BEN JOHNSTON, M.D., LL.D., F.A.C.S.

In the death last month, at the age of 63, of George Ben Johnston, of Richmond, emeritus professor of surgery in the Medical College of Virginia, the South has lost one of its eminent surgeons and teachers. He had a large and active practice and, like the McGuires, had done very much to make Richmond the medical, and especially the surgical, center of a very large district.

American Journal of Surgery

PUBLISHED BY THE

SURGERY PUBLISHING CO.

J. MacDONALD, Jr., M.D., President and Treasurer

92 William St., New York, U. S. A.

to whom all communications intended for the Editor, original articles, books for review, exchanges, business letters and subscriptions should be addressed.

SUBSCRIPTION PRICE, ONE DOLLAR.
FOREIGN, SIX SHILLINGS.

Original Articles and Clinical Reports are solicited for publication with the understanding that they are contributed exclusively for this journal.

It is of advantage to submit typewritten manuscript; it avoids errors.

CHANGE OF ADDRESS. Subscribers changing their addresses should immediately notify us of their present and past locations. We cannot hold ourselves responsible for non-receipt of the Journal in such cases unless we are thus notified.

ILLUSTRATIONS. Half-tones, line etchings and other illustrations will be furnished by the publishers when photographs or drawings are supplied by the author.

☞ SPECIAL NOTICE TO SUBSCRIBERS ☜

The "American Journal of Surgery" is never sent to any subscriber except upon a definite written order. Present and prospective readers please note this.

WALTER M. BRICKNER, M.D., Editor

NEW YORK, JANUARY, 1917.

FIRST AID TO THE INJURED.

Accidents are important and often peculiar because they occur under circumstances in which confusion and unpreparedness exist. Rapid transportation, the power of machinery, intensive application, fatigue, and the high pressure under which modern industry is carried on are capable of producing many accidents. Human disasters are suffered largely because the intensive machine work of the present day is conducted, not for the specific purpose that gives it its human value, but for the purpose of creating profits for those who own the tools and properties of production and transportation; and the interests of property and profits are permitted to take precedence over the interests of human life.

The prophylaxis of accidents will be most largely served when things are done because society needs them to be done, and not because small privileged groups in society are given opportunities to make profits. When the railroads and steamboats are run for the purpose of carrying passengers and commodities safely and expeditiously from one point to another, and not for the purpose of making dividends and interest—two utterly different and antagonistic motives—accidents will be diminished. When mills are run to produce food, clothing, and other human necessities for all of the people instead of profits for the few owners, the most important step in the prophylaxis of accidents will have been taken, and the longest steps toward the abolition of

war, the great cataclysmic social atrocity, will have been made.

In the United States 75,000 people are killed yearly by accidents. Of these deaths, 50,000 occur in the competitive, profit-making, industrial struggle. Among workers in our industries, 36,000 are killed annually by accidents while at work. In the United States, in every 100 deaths among working males over fourteen years of age, over 9 per cent. are due to accidents. Nearly 4,000 workers are killed in the mines of the United States; and on the railroads 3,000 railroad employees are killed yearly, and 60,000 seriously injured. The railroads of the United States injure 170,000 and kill 12,000 people each year. In this country 2,000,000 children, who should be at play or at school, are working in the industries; and among them accidents are more than twice as common among adults in the same industries. The children are too young to take care of themselves. These accidents and deaths are but a trifle compared with the human injuries which arise indirectly from the same causes, and are seen associated with the crowded tenements, squalor, ignorance, and all the debauchery which the unequal competitive industrial struggle engenders.

Surgeons, who must deal with human suffering, should be something more than smug approvers of the *status quo*. In his eagerness to display the evidences of prosperity, the surgeon should not fall into the slovenly habit of necessarily approving of the things of which the rich approve and by virtue of which they retain their riches. He at least should apply the test of scientific inquiry and of social justice. There is abundant information upon these subjects accessible to all who are not afraid to possess themselves of it.[1]

No discussion of accidents is complete unless it calls attention to the industrial atrocities, for the most important consideration as an adjunct to treatment is the consideration of prevention. The statement oft made by the agents of great corporations, that "accidents occurring to employees and passengers result, for the most part, from carelessness or neglect on the part of the individual injured or of some employee responsible for the safety of others" (Keen's Surgery, Vol. V, p. 915), is either a purposeful equivocation or a misinterpretation of facts.

Surgery at least should be honest in dealing with the injured, and put the responsibility where it belongs. If it is the duty of surgery to bind up the wounds, it is also its duty to raise its voice against the greed for profits that causes the wounds. If it is the business of surgery to demand better equipment and organization to take care of the human wreckage of our industrial warfare, the result of which care is to make it more possible for employers to continue the exploitation of workers; so also is it the business of surgery to demand a social readjustment in the interest of the abolition of the privileges which make possible this same exploitation of human beings. Science and art are not worth keeping alive if they presume aloofness from the great fundamentals of human justice.—JAMES PETER WARBASSE.

[1] See: Public Health Bulletin No. 76, March, 1916, published by the Treasury Department, U. S. Public Health Services; Bulletin No. 30, Report on National Vitality, by Prof. Irving Fisher, for the National Conservation Commission; The Child Labor Bulletin, 1914, 1915, 1916, and 1917; Report of the United States Commission on Industrial Relations, 1915; Reports of the United States Children's Bureau, 1915, 1916 and 1917; Reports of the United States Department of Labor, 1910 to 1917; J. P. Warbasse, "The Socialization of Medicine," Jour. Am. Med. Assoc., 1913; Scott Nearing, "Income" and "Anthracite."

FRACTURE OF THE NECK OF THE FEMUR IN OLD PEOPLE.

Fracture of the neck of the femur is probably the most common serious accident in the aged. The management of this fracture by Buck's extension, commonly employed until about fifteen years ago, and still too often used thus, is usually most unsatisfactory and should be abandoned altogether. One should consider only the following three plans: Whitman's reduction and immobilization; open operation (nailing or bone dowelling); no treatment. In the aged, open operation is hardly to be considered, and the surgeon has to decide according to the patient's condition whether he will reduce and immobilize the fracture in plaster, or get the patient about as best he can without attempting to secure union. In the very senile he will adopt the latter course; in less "aged" individuals the indication may not be so easy to decide. The average person of seventy is on the borderline where the surgeon should judge by the degree of his senility rather than by his years, whether he will bear the Whitman reduction under anesthesia and prolonged immobilization, or whether he should be denied this opportunity for an anatomical cure. Medically we must consider as "aged" those who are very old in their tissues and functions, no matter how old they be in years.

Fracture of the neck of the femur, always a very serious injury, is, in the aged, very often fatal—either early, by fat embolism or, much more commonly, by gradual debilitation and pulmonary hypostasis. With the breaking off of this span of bone often breaks off the span of life. Via the

pubic arch most of us enter the world via the femoral arch many of us leave it.—W. M. B.

FORTHCOMING ISSUES OF THE JOURNAL

The March, 1917, number of the JOURNAL will be devoted to surgery of the eye, ear, nose, throat, and bronchi.

In the February and April issues will appear, among others, the following articles:

The Recurrence of Gall Stones, by John B. Deaver, Philadelphia;

A Method of Opening a Parotid Abscess without Injury to the Facial Nerve, by Howard Lilienthal, New York;

A New Procedure for Suspension of the Pelvic Colon, by J. H. Kellogg, Battle Creek;

The Plastic Closure of Gunshot and Shrapnel Defects of the Inferior Maxilla, by J. F. S. Esser, Holland;

Clinical Observations on the Treatment of Prostatic Obstruction, by Henry G. Bugbee, New York;

The Suction Apparatus in Surgical Operations, by Walter M. Brickner, New York;

The Biopsy: How the Surgeon May Contribute to Its Diagnostic Value, by B. G. R. Williams, Paris, Ill.;

The Treatment of Colles' Fracture Considered from the Standpoint of Muscle Physiology, by Alfred J. Brown, New York;

With the April issue will also appear the quarterly Anesthesia Supplement.

Surgical Suggestions

Acute osteomyelitis of the fibula is comparatively rare. It is best treated, especially in children, by periosteal resection of the affected bone. Care must be exercised to avoid injury to the peroneal nerve and its branches.

Before performing a prostatectomy it is wise to determine roentgenographically that there is no stone in kidney or ureter.

An operation, even a radical one, for strangulated hernia is usually well borne by the senile, under local anesthesia. Cocaine should be avoided, however, if possible.

Never curette the uterus post-partum. The placenta should be expelled or removed at the time of labor. Small, retained pieces of placenta or membranes do no harm if introduction of outside bacteria is avoided.

Book Reviews

Diagnosis and Treatment of Surgical Diseases of the Spinal Cord and Its Membranes. By CHARLES A. ELSBERG, M.D., F.A.C.S., Professor of Clinical Surgery at the New York University and Bellevue Hospital Medical College; Attending Surgeon to Mount Sinai Hospital and to the New York Neurological Institute. Octavo; 330 pages; 158 illustrations, three of them in colors. Philadelphia & London: W. B. SAUNDERS COMPANY, 1916.

Elsberg is one of the few who have achieved eminence in that highly specialized and difficult branch of medicine, the surgery of the central nervous system. To the pathology and the surgery of spinal cord lesions, especially, he has contributed much. This admirable volume comes to us with the impress of authority and unusual experience.

It is an altogether practical work, and the author has made it so not only by its wealth of beautiful, original half-tone illustrations by Josef Lenhard, but also by avoiding prolixity and confusing detail.

If the work teaches anything—and we think it teaches many things—it is that the neurologic surgeon should be able himself to diagnose and to localize organic lesions of the brain and cord (and, we might add, to distinguish functional disturbances from them). The surgeon who is dependent wholly upon the neurologist for his indications, general and topographic, is distinctly at a disadvantage.

Elsberg divides his subject into three parts. Part I deals with the anatomy of the vertebral column, of the spinal cord and its membranes; the physiology of the spinal cord (briefly); the localization of functions in the various segments; the symptomatology of cord lesions at various levels; differential diagnosis; roentgenography of the spinal column (with many excellent pictures, of which one—on page 79—is inverted); and a comprehensive and methodical plan of examination of the patient.

Part II is devoted to the technic of operations upon the spine, the cord and the nerve roots. In it Elsberg describes and illustrates his technic of laminectomy, division of the posterior roots (including indications, rationale, and methods), division of the antero-lateral tracts for pain (Spiller and Martin), the technic of aspiration and incision of the cord, and lumbar puncture. The difficulties and dangers, as well as methods and after-treatment of spinal operations, are considered. Elsberg does not advocate osteoplastic or hemi-laminectomy and the functional and anatomical results and free exposure of bilateral laminectomy, rapidly performed, support his choice. In a few pages the author presents the indications and contraindications that govern the consideration of a laminectomy. He also calls attention again to the fact that simple exploratory exposure of the spinal cord, even in the absence of increased tension, often relieves a great variety of symptoms.

Part III describes the surgery of the following conditions: spina bifida and spina bifida occulta; abnormalities and diseases of the spinal bloodvessels; fractures and dislocations affecting the cord or nerve roots, and bullet and stab wounds of the cord; tumors of the vertebrae, the cord and its membranes (with a description of the two-stage "extrusion" method of operating for intramedullary growths evolved by Elsberg and Beer); hematomyelia, syringomyelia, gliosis, and cord abscess; inflammatory diseases of the cord, nerve roots, and membranes, including "neuritis of the cauda equina" as recently described by Elsberg and Kennedy; cord complications of Potts' disease, and inflammatory diseases of the vertebrae.

In his description of spina bifida occulta Elsberg says that it is a variety of spina bifida "in which there is no true sac and in which there is a fibrous connection between the skin and the spinal cord, or its nerves or its membranes, through a cleft in the arch of one of the vertebrae." In spina bifida occulta there is often a true sac, indeed a distinct hernia of nerve roots and meninges, and there is also often a congenital lipoma separating these

from the skin, as Elsberg mentions on another page. He attributes the appearance of symptoms during adolescence to traction upon the membranes or the nerve roots and cord by the lengthening of the spinal column and the relative shortening of the cord; this is but a part of the explanation, for it omits from consideration the teratoma that is often found in the canal and the degenerative processes that are independent of traction.

With the exception of a few uncorrected printer's errors this book is typographically and pictorially as attractive as it is textually excellent. It is therefore all the more to be regretted that the author was not more careful in grammatical construction and phraseology.

Geriatrics. The Diseases of Old Age and Their Treatment. Including Physiological Old Age, Home and Institutional Care, and Medico-Legal Relations. By I. L. NASCHER, M.D., Chief of Clinic, Internal Medicine, Mount Sinai Hospital Dispensary, New York; formerly Special Lecturer on Geriatrics, Fordham University School of Medicine. With an Introduction by I. JACOBI, M.D. *Second Edition.* Large octavo; 527 pages; 50 plates (81 illustrations). Philadelphia: P. BLAKISTON'S SON & Co., 1916.

Geriatrics, the term invented by Nascher and now generally adopted, applies to an important phase of medicine that has had but comparatively little special consideration. The literature of senile affections and the physiology and pathology of senility is comparatively small. This work is unique; it is the only modern comprehensive book on the subject in our language.

In this, the second edition, the author has brought his work up to date and has added a well-considered chapter on "Surgical Procedure in Senile Cases," in which the dangers of major surgery on the aged are discussed and the treatment of some of the commoner surgical conditions that may arise in the senile is considered.

The illustrations in the work are all borrowed; original photographs would have added to its value and attractiveness. The typographic arrangement could also be improved.

From the therapeutic side the reader cannot fail to learn a good deal from reference to this work. The discursive portions on the physiology of old age, on pathological states and degenerative processes, and on the miscellaneous topics grouped under the heading of Hygiene and Medico-Legal Relations will likewise be found suggestive and interesting.

The Treatment of Diabetes Mellitus. With observations upon the disease based upon 1,000 cases. By ELLIOT P. JOSLIN, M.D., Assistant Professor of Medicine, Harvard Medical School; Consulting Physician, Boston City Hospital, etc. Octavo; 440 pages; illustrated. Philadelphia and New York: LEA AND FEBIGER, 1916.

The studies in diabetes during the past five years, especially by Allen, have almost completely reversed our understanding and treatment of this disease. For these benefits, which the practitioner has proven by his better results, we feel profoundly grateful. It is therefore with especial interest that we welcome this book, written by a master, who has contributed much to our understanding of the subject.

The title belies its content, as the subjects of the chapters indicate. These are: 1. Statistical studies upon the course and treatment of diabetes mellitus. 2. Important factors in the treatment of diabetes. 3. Examination of the urine, blood and respiration. 4. The diet in health and diabetes. 5. Treatment. 6. Aids in the practical management of diabetic cases.

The text is the result of a fine combination of broad experience and intensive study, clinical, experimental and chemical. It is refreshing to find such clean-cut statements. The style is easy and didactic. References to the literature are abundant, although the text is not burdened by proper names. Numerous case reports illuminate the text. Numerous charts, tables, etc., also constitute much to the value of the work. To our mind, it is the most valuable and authoritative book on the subject extant.

Progress in Surgery

A Résumé of Recent Literature.

Perineal Anesthesia in Labor. ROBERT W. KING, *Surgery, Gynecology and Obstetrics,* November, 1916.

According to King, it is possible to anesthesize the perineum by nerve blocking so that the pains of labor may not be felt for a period varying between two and four hours. The perineum is divided into two triangles, an anterior and a posterior, by drawing a line between the tuberosities of the ischium in front of the anus. In the anterior triangle the needle is entered at a point 2 to 4 centimeters above the lower margin of the vagina and 2 centimeters from the rami. It is then passed 2 to 4 centimeters in depth where it may meet the resistance of Colles' fascia, which is a tender point and causes the patient to express pain. The Colles fascia is penetrated and the solution, 2 per cent. novocain, injected. About 1½ ccm. is used on either side. In the posterior triangle the needle is entered at a point midway between the anus and tuberosities to a depth of 4 centimeters. From 5 to 10 c.c.m. of a 1 per cent. solution of novocain are injected in the posterior triangle on either side. Anesthesia follows a few minutes after the injection and lasts from 2 to 4 hours. It should be used for the second (perineal) stage of labor.

Ectopia Testis Transversa with Infantile Uterus. ARTHUR E. HERTZLER, *Surgery, Gynecology and Obstetrics,* November, 1916.

The very rare condition of two testes in one sac, described in the term invented by Lenbrossak "ectopia testis transversa," is made still rarer by the association in the same serotal sac of an infantile uterus. In structure the uterus was complete but under-developed. There is one other similar anomaly recorded in the literature, that reported by Cornil and Brossard.

A Contribution to the Etiologic Study of Ovaritis. CARL HENRY DAVIS, *Surgery, Gynecology and Obstetrics,* November, 1915.

From a cultural study of 62 ovaries showing the changes found in fibrocystic degenerations and 3 in which the process was more acute, the finding of the streptococcus viridaus in 50 per cent. of the cultures suggests that the streptococcus viridaus is the most common organism associated with chronic ovaritis. The gonococcus was found in a very small percentage of the cultures, indicating that this organism may not be responsible for as many infections of the ovary as has been formerly supposed. In a number of the cases there was no definite history of gonorrhea or puerperal sepsis, especially in young women. But there was in these cases a definite history of angina developing during menstruation, of pelvic symptoms following a tonsillitis. Further, the organism recovered by culture from the ovary reproduced, on inoculation, ovaritis in animals. All these facts point to the hematogenous origin of chronic ovaritis not traceable to gonorrhea or puerperal infection.

In 15 of 18 degenerated ovaries associated with fibroids of the uterus (eleven showed streptococcus viridaus), bacteria were found suggesting strongly that bacteria are likewise responsible for the chronic ovaries so commonly associated wih fibromyomata.

The Leucocytes in Pregnancy, Labor and the Puerperium. JOSEPH L. BAER. *Surgery, Gynecology and Obstetrics,* November, 1916.

There is, according to Baer, a lencocytosis of pregnancy which appears in the ninth month, slight in amount and especially noticeable in primiparae. In labor the lencocytosis is marked in primiparae, averaging 18, 255, and is increased by a duration of labor beyond twenty-four hours. It is less marked in II parae and is slight in III plus parae. The height of the curve in primiparae and multiparae is reached on the first day of the puerperium, after which there is a rapid and constant decline to the tenth day, at which time the curve is about at the

normal level. The onset of lactation does not influence the lencocyte count, except that in the "fourth day" primiparae there is a slight secondary elevation on the preceding day—about 1,500 to 2,000. Age is not a factor, except in primiparae aged 20 years and under, in whom the lencocytosis is higher than in any other group.

The Bastedo Sign in Chronic Appendicitis. JACOB ROSENBLOOM. *Surgery, Gynecology and Obstetrics,* November, 1916.

Bastedo described a method in 1909 and 1911 of eliciting tenderness over McBurney's point by distention of the colon by means of an atomizer bulb. The colon tube is passed eleven to twelve inches into the rectum and on distension with air pain and tenderness become apparent at that point in the presence of chronic appendictis. Rosenbloom presents 40 cases of intra-abdominal lesions with operative findings in which this test was applied. Practically in every case of chronic appendictis the Bastedo Sign was present. In the other conditions it was negative.

The Etiology and Pathology of Non-Tuberculous Renal Infections. HUGH CABOT and E. GRANVILLE CRABTREE. *Surgery, Gynecology and Obstetrics,* November, 1916.

That there is no lesion of the kidney typical of an ascending infection is the contention of these authors. Two cases in their experience have convinced them of this fact, as the lesions illustrated in the paper are identical, whether the infection is of the ascending variety or hematogenous. The urine contains the infective organisms very early in the disease, though not for long. The two types of infection are: (1) Suppurative infection involving chiefly the cortex and compartively little the convoluted tubules. In this variety the function as determined by phthalein is very little affected. (2) The chief lesion of acute renal infections with the colon bacillus group is first in the convoluted tubule, the pelvic lesion, though appearing early, being, they think, secondary to the tubular lesion. In this variety there are profound changes in the kidney function as determined by the phthalein excretion. According to Crabtree, it is possible to differentiate between these two types of renal infection.

If with clinical evidence suggesting a renal infection, freshly drawn urine shows cocci in abundance with a small amount of albumin, a few red blood corpuscles and many lencocytes or a little pus, together with a renal function at or near normal limits, a diagnosis of coccus infection of the kidney is justified. If, on the other hand, a similar examination shows many bacilli, a little albumin and much pus coupled with a markedly diminished kidney function, a diagnosis of coon bacillus infection of the kidney is unavoidable.

The Treatment of Papilloma of the Bladder by the High-Frequency Current. J. W. THOMPSON WALKER, *The British Journal of Surgery,* October, 1916.

Walker analyzes his results with Beer's method of "high-frequency" treatment in thirty-three cases of papilloma of the bladder. In 14 cases the growth was completely destroyed in one sitting; the patients were allowed to get up promptly, or after one day's rest. This procedure is in marked contrast to the circumstances which attend an open operation for a similar condition. In but very few of the cases two or more sittings were required for removal of the growth. Where necessary, the treatment should be persisted in, until all traces of the growth have disappeared.

Walker points out that Beer's procedure is not applicable to some types of multiple coalescing papillomatous growths, infected growths, growths in the immediate vicinity of the urethral orifice, and finally malignant neoplasms.

Wounds of the Thoracic Duct. EDWARD HARRISON. *The British Journal of Surgery,* October, 1916.

After a preliminary review of the works of several authors who have written on this subject, Harrison discusses in greater detail the four most available methods of treatment advocated, and he places them in the order of their relative importance.

1. *Suture.* Where this can be accomplished, suturing the wound of the duct is by far the most preferable procedure.

2. *Implantation into a vein.* This should be, by all means, accomplished if the duct is single. Obviously this entails a great deal of technical skill, but the result, if successful, is well worth all efforts.

3. *Ligation of the duct.* Since Parsons and Sargent have shown that in 18 out of 40 cases the duct has two terminal branches, it may be expected that ligation of the thoracic duct may be successful in nearly half the cases met with. The surgeon should therefore look for a second terminal branch, and if found, ligation should be carried out.

4. *Tamponade.* This last procedure should be the last resort. The hope here lies in the possibility of establishment of collateral circulation.

A Plea for the Electro-cautery in the Treatment of Laryngeal Tuberculosis. By SAMUEL IGLAUER, *The Laryngoscope,* October, 1916.

After stating the gloomy outlook in the treatment of laryngeal tuberculosis by the generally employed methods of sprays, inhalations, local applications, etc., Iglauer gives the rather favorable statistics of the cautery method as employed by various clinicians.

Experimentally, Albrecht inocculated the larynges of rabbits with human tuberculosis. He cauterized the resulting lesions with the galvano-cautery and killed the rabbits at varying intervals. A local destruction of tissue took place from the cauterization. Remotely there was an inflammatory reaction and a fibrosis which tended to limit the tubercular process.

Iglauer does not recommend this treatment for patients who have active pulmonary lesions with high temperatures.

He operates with the suspension laryngoscope under cocain and scopolamin-morphin-anesthesia. Post-operative treatment consists of ice applications to the neck, ice pills and orthoform insufflation. Dangerous edema is rare.

Felons. GEORGE M. DORRANCE. *Annals of Surgery,* December, 1916.

Dorrance has made a careful anatomical and pathological study of felons, and has reached the conclusion that the usual method of treating a felon is faulty and entirely contrary to the underlying pathology of the condition.

His method is to promptly (the earlier the better) incise the finger. The incision starts at the base of the nail on one side and extends along the line of the furrow over to the tip of the finger, down on the other side to a point on a level with the beginning of the incision, in this way making a flap of the finger tip. A drain is kept in place for three days and then removed permanently. The parts are kept wet with normal saline solution.

Practically all felons treated in this way give a perfect result.

Massive Hemorrhages of the Stomach Without Demonstrable Ulcer. A. V. MOSCHCOWITZ, New York. *American Journal of the Medical Sciences,* November, 1916.

Moschcowitz reports four cases. In all the only symptom was massive hemorrhages from the stomach, frequently repeated. There was no previous history of gastric disturbance. Following these hemorrhages there was a profound anemia. At operation no demonstrable lesion was found, although for obvious reasons the stomach was not opened. A gastro-enterostomy, sometimes with pyloric occlusion, was done, and all patients recovered completely. In some instances the operation was not followed by prompt cessation of the hemorrhage. Moschcowitz believes his cases correspond to those originally described by Dieulefoy. The latter describes in these cases a small "exulceration" extending into the submucosa; at the base of this small ulcer is a bloodvessel of considerable size. Up to the present only a comparatively small number of such cases has been reported.